UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
PREVENTION, PESTICIDES, AND
TOXIC SUBSTANCES

MEMORANDUM

DATE: September 30, 2003

SUBJECT: **Metam-sodium; Health Effects Division (HED) Metabolism Assessment Review Committee (MARC) Decision Document. Meeting Date June 11, 2003.**

PC code 039003.
Rereg. Case 2390.
DP Barcode D284282.

FROM: Sherrie L. Kinard, Chemist
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THROUGH: Alan Nielsen, Branch Senior Scientist
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and

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TO: Yan Donovan, HED MARC Executive Secretary
Health Effects Division (7509C)

Introduction

The MARC met on June 11, 2003 to discuss metam sodium residues of concern in drinking water. The Committee was asked to determine the residues of concern in drinking water and for risk assessment purposes.

Material Reviewed
RRB2 submitted a briefing document prepared by Sherrie L. Kinard (D290848, June 7, 2003). EFED presented water issues directly to the Committee. No additional documents were presented at the meeting.

MARC Members in Attendance: Abdallah Khasawinah, Christine Olinger, Thuy Nguyen, Yan Donovan, Donna Davis, Rick Loranger, Cheng Leung, John Doherty, PV Shah, Bill Wassell, Alberto Protzel.

MARC Members in Absentia: Sheila Piper, Leonard Keifer.

non-MARC Members in Attendance: Sherrie Kinard, Carol Christensen, Judy Facey, Faruque Khan (EFED), Veronique Lacapra (SRRD).

MARC Decision Table

The recommendations for degradates and metabolites to be included in the dietary risk assessment, and the metabolites included in the tolerance expression are summarized in Table 1.

Table 1. Summary of MARC Decisions for Metam-sodium (MARC Meeting June 11, 2003)

Chemical: Metam-sodium Date: 11-June-2003		
	Residues of Concern	
Matrix	For Risk Assessment	For Tolerance Expression
Crops, Livestock, Rotational Crops	N/A	N/A
Water	methyl isothiocyanate (MITC)	N/A

MARC Decision Rationale

The qualitative nature of the residue in plants is adequately understood based on an acceptable turnip metabolism study, and consists of natural plant biochemicals. In the reviewed turnip study, neither metam-sodium, MITC nor any related thioureas or methylated ureas were detected in the extractable radioactivity or the post-extraction solids. The observed radioactivity was shown to be distributed over a variety of natural products indicating complete incorporation of metam-sodium into the carbon pool. The results of the turnip study confirm the registrant's conclusions from previous metabolism studies conducted on Chinese cabbage, radish, and tomato that no metam-sodium residues of concern are detected in plants when the soil sterilant is applied according to label directions; therefore, HED determined (DP Barcode D215298, 6/26/96, S. Willett) that no tolerances are needed with respect to the use of metam-sodium as a soil sterilant. There are currently no tolerances established for residues of metam-sodium.

Water: Environmental fate data suggests that metam-sodium photolyzes in surface water with a half-life of 28 minutes and metabolizes aerobically in soil with a 23 min half-life. The major routes of degradation based on the use pattern are valitalization/dissipation and aerobic soil metabolism. Metam sodium rapidly degrades in soil and water bodies generating 60 to 83% of Methyl isothiocyanate (MITC) under prevalent environmental conditions. (MITC is also the most common volatile degradate found in each submitted guideline study). Although there were no detection of MITC during groundwater monitoring, MITC has the potential to leak into groundwater, especially after rains.

After the meeting MARC member Alberto Protzel mentioned the carcinogenicity concerns of1,3 dimethylthiourea (DMTU), a degradates of metam-sodium found in hydrolysis, because DMTU is in

the same class of compounds as thiourea, diethyl thiourea, and trimethylthiourea. As a result, MARC requested that the risk assessment team recheck the EFED data base. After rechecking the EFED data, Faruque Khan concluded that no measurable DMTU was detected in the soil aerobic metabolism studies, and no DMTU was detected in terrestrial field dissipation study either (currently under EFED's review). Since DMTU was only found in hydrolysis, which is not a major route of degradation based on the use pattern, MARC concluded that the exposure level of DMTU will not likely to be significant and therefore it can be excluded.

There are no dietary endpoints selected for metam-sodium, however, acute and chronic dietary endpoints were selected for MITC. MITC is also registered to use as an active ingredient to preserve utility poles. HED will be conducting dietary risk assessment for MITC instead. MARC concluded that for the proposed use on metam-sodium, MITC is the residue of toxicological concern and be included in drinking water assessment.

Reference: Metam-sodium. Metabolism Committee Briefing Memorandum. (D290848, June 7, 2003).

cc: Sherrie L. Kinard (RRB2), Faruque Khan (EFED), Metam-sodium Subject File, RF, LAN.

RD/I: Metam-sodium Team Review (08/29/03), A. Nielsen (09/30/03).

7509C: RRB2: S. Kinard: CM#2:Rm 712M: 703-305-0563: 09/30/03.